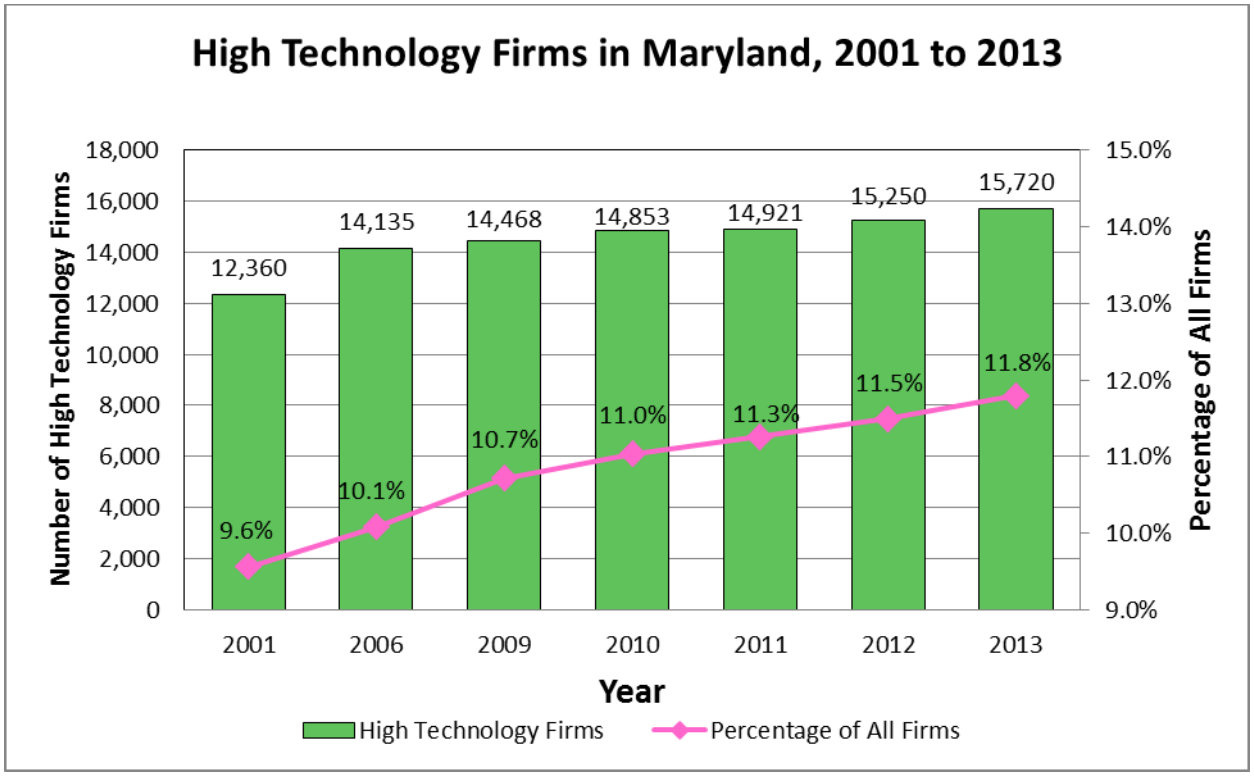
High-Technology Establishments in Maryland – 2013

There were 15,720 high-technology establishments in Maryland in 2013, representing 11.8 percent of all Maryland establishments, according to an analysis of NAICS[1] codes in the 2013 U.S. Census Bureau's County/Zip Code Business Patterns by the Maryland Department of Planning. The number of high-technology establishments increased by 470 between 2012 and 2013, greater than the combined increase over the two previous years (397)

Chart 1



Source: 2001, 2006, 2009 to 2013 County Business Patterns, U.S. Census Bureau

Nationally, there are 181 six-digit NAICS sectors that are considered to represent high tech industries. For ease of analysis, these categories were collapsed into 43 four-digit NAICS sectors and five six-digit sectors[2]. Though Maryland contained a great variety of high tech firms, the overwhelming majority of establishments were found in just a few of these sectors, with the top five NAICS sectors accounting for 12,937 of the State's 15,720 high tech firms (82.3%).

[1] NAICS stands for North American Industrial Classification System. It is the replacement for the Standard Industrial Classification (SIC) system.

[2] Note that NAICS industry classifications for a few high tech industries were changed in 2007 and again in 2012 from previous classifications. A complete description of the changes from 2002 to 2007 and from 2007 to 2012 can be found at http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012

Top Five High-Technology Sectors in Maryland – 2013

NAICS Code	Sector Description	Number of Firms	Percent of Total	Cumulative Percent of Total
5415	Computer Systems Design and Related Services	4,776	30.4%	30.4%
5416	Management, Scientific, and Technical Consulting Services	3,589	22.8%	53.2%
5413	Architectural, Engineering, and Related Services	2,356	15.0%	68.2%
5511	Management of Companies and Enterprises	1,207	7.7%	75.9%
5417	Scientific Research and Development Services	739	4.7%	80.6%

Source: 2013 County Business Patterns, U.S. Census Bureau

A complete list of high tech firms by NAICS code and size range can be found in **Table 1**

Change Since 2006

Growth in establishments since 2006 were predominantly in the Computer Systems Design and Related Services sector which grew by 1,174, or about 32.6 percent, and in Management of Companies and Enterprises, growing by 390 establishments or 47.7 percent which had the highest percentage growth among all the sectors. The largest numeric decline in establishments since 2006 occurred in the Architectural, Engineering, and Related Services sector (-86, -3.5%), while the second largest decline occurred in the Electronic and Precision Equipment Repair and Maintenance sector (-49, -17.0%).

Five Largest Numeric Gains for High-Technology Sectors in Maryland – 2006-2013

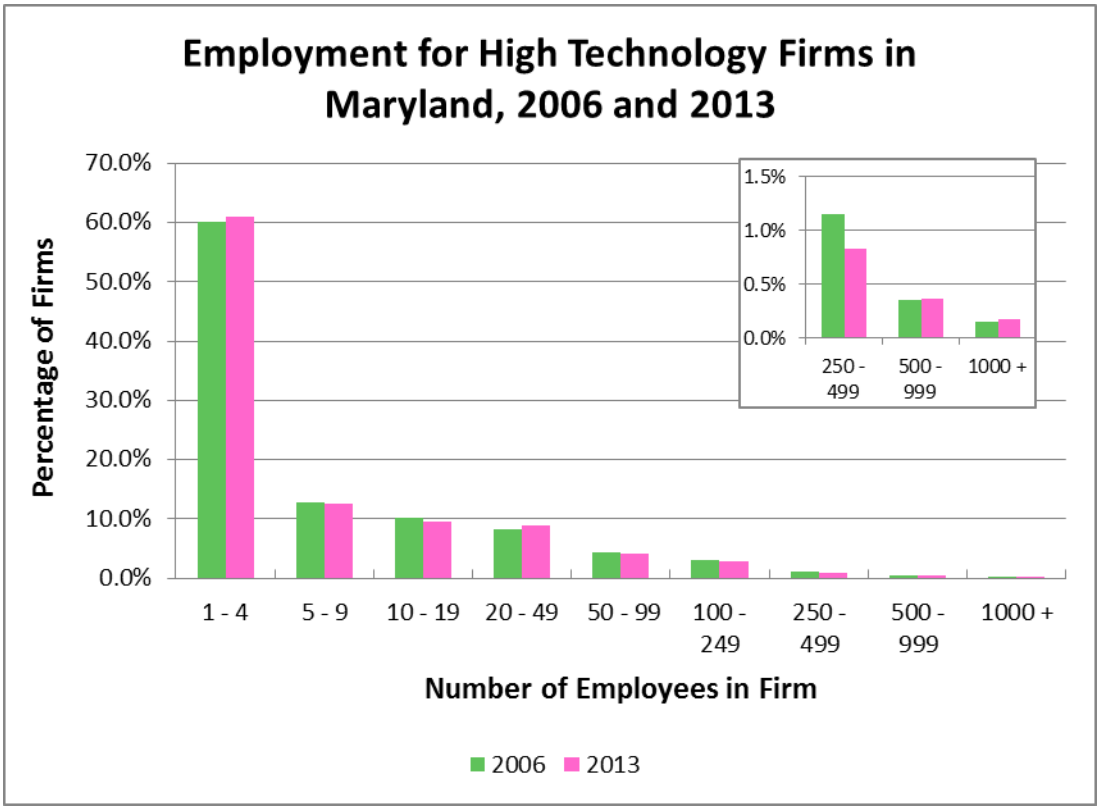
NAICS Code	Sector Description	2013 Rank	Number of Firms 2013	Number of Firms 2006	Change	Percent Change
5415	Computer Systems Design and Related Services	1	4,776	3,602	1,174	32.6%
5511	Management of Companies and Enterprises	4	1,207	817	390	47.7%
5416	Management, Scientific, and Technical Consulting Services	2	3,589	3,638	221	6.1%
5171	Wired Telecommunications Carriers	6	657	574	83	14.5%
5612	Facilities Support Services	12	222	157	65	41.4%
	Other High Tech Firms		4,999	5,324	-325	-6.1%
	Total		**15,720**	**14,135**	**1,585**	**11.2%**

Source: 2006 & 2013 County Business Patterns, U.S. Census Bureau

Most Establishments are Small

Overwhelmingly, high tech establishments in 2013 were small, with almost three out of four (73.5%) having less than ten employees, and 60.9 percent with less than five employees. (See **Table 2** and **Table 3**) At the other end of the scale, only 8.2 percent of all total high-tech establishments have 50 or more employees. An overwhelming majority of the growth in high tech industries from 2006 to 2013 was among firms that employed less than 5 persons (1,093, 12.9%). Firms employing 1,000 or more employees added seven (33.3%) new firms between 2006 and 2013.

Chart 2



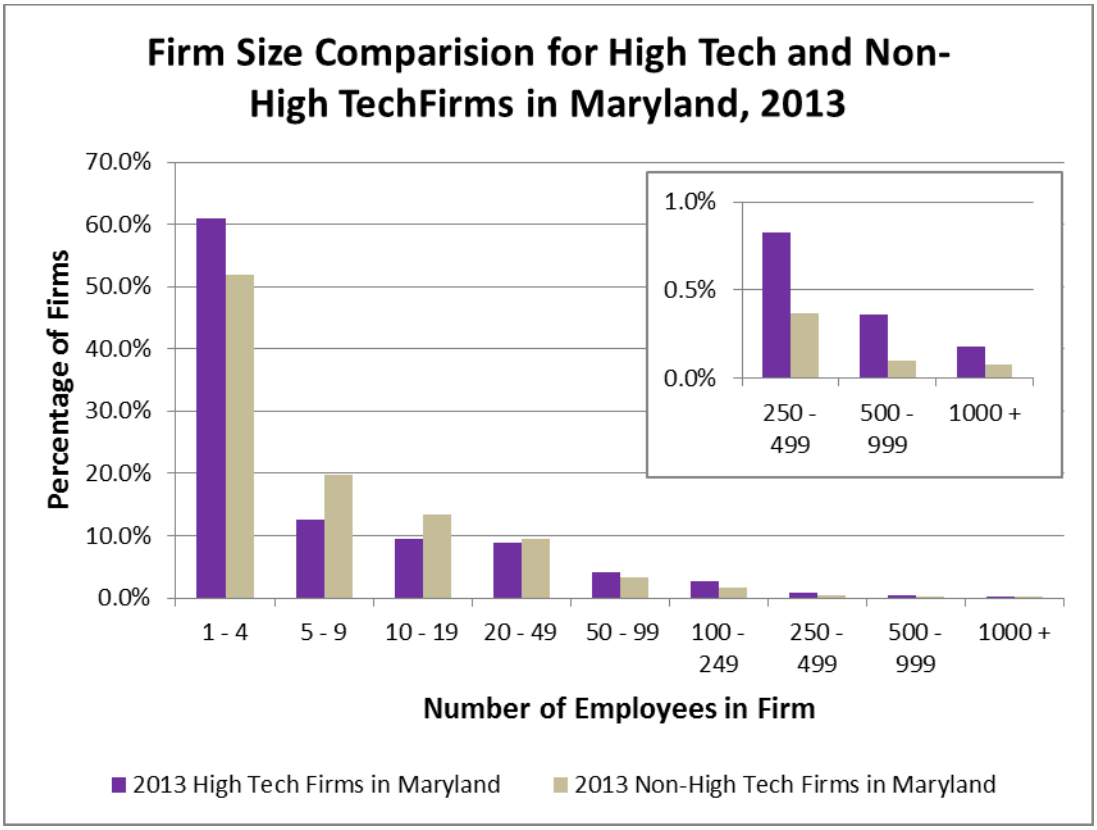
Source: 2013 U.S. Census Bureau, County Business Patterns

A majority of the firms in the top five sectors are also small, employing less than five people. For example, in the Management, Scientific, and Technical Consulting Services sector 76.0% of firms have less than five employees, while 66.2% of the firms in the Computer Systems Design and Related Services sector have less than five employees. Only Wireless Telecommunications Carriers except Satellite (23.8%) and Facilities Support Service (28.4%) sectors among the top ten high tech sectors have less than 30 percent of firms who employ less than five people.

Comparing (*see Chart 3*) High-Tech establishments with all other establishments shows that the high tech establishments had a greater share in both smaller and larger firms than firms in non-high tech

industries in 2013. High tech establishments having less than 5 employees made up 60.9% of all high tech firms, while small firms made up only 51.9% of non-high tech establishments. For larger establishments, the share of firms with 50 or more employees was higher for high tech establishments (8.2%) compared to non-high tech establishments (5.6%).

Chart 3

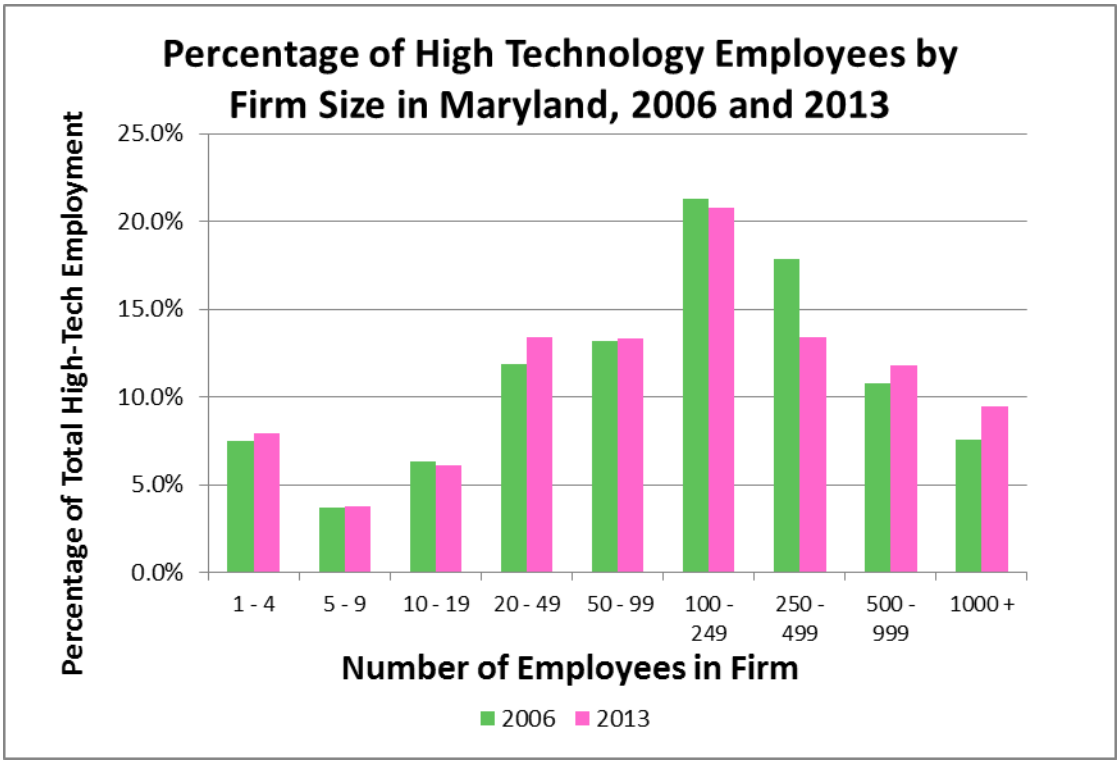


Source: 2013 U.S. Census Bureau, ZIP Code Business Patterns

There is a greater concentration of large high tech firms in the economy than there is of all high tech firms. For instance, in 2013, high tech firms of 500 or more employees made up nearly one third (29.3%) of all establishments with employment of 500 or more, nearly three times the overall share (11.8%) of high tech firms of all firms (*see Chart 3*).

In 2013 there were more employees in firms who employ 500 or more people compared to year 2006 (77,050 employees in 2013 vs 62,475 employees in 2006) (*see Chart 4*) [3]. In addition, while the majority (60.9%) of the high tech firms are small, employing less than five persons (*see Chart 3*), it is estimated that more than three quarters (82.2%) of the employees in the high tech sector work in firms that employ 20 or more people (see Chart 5).

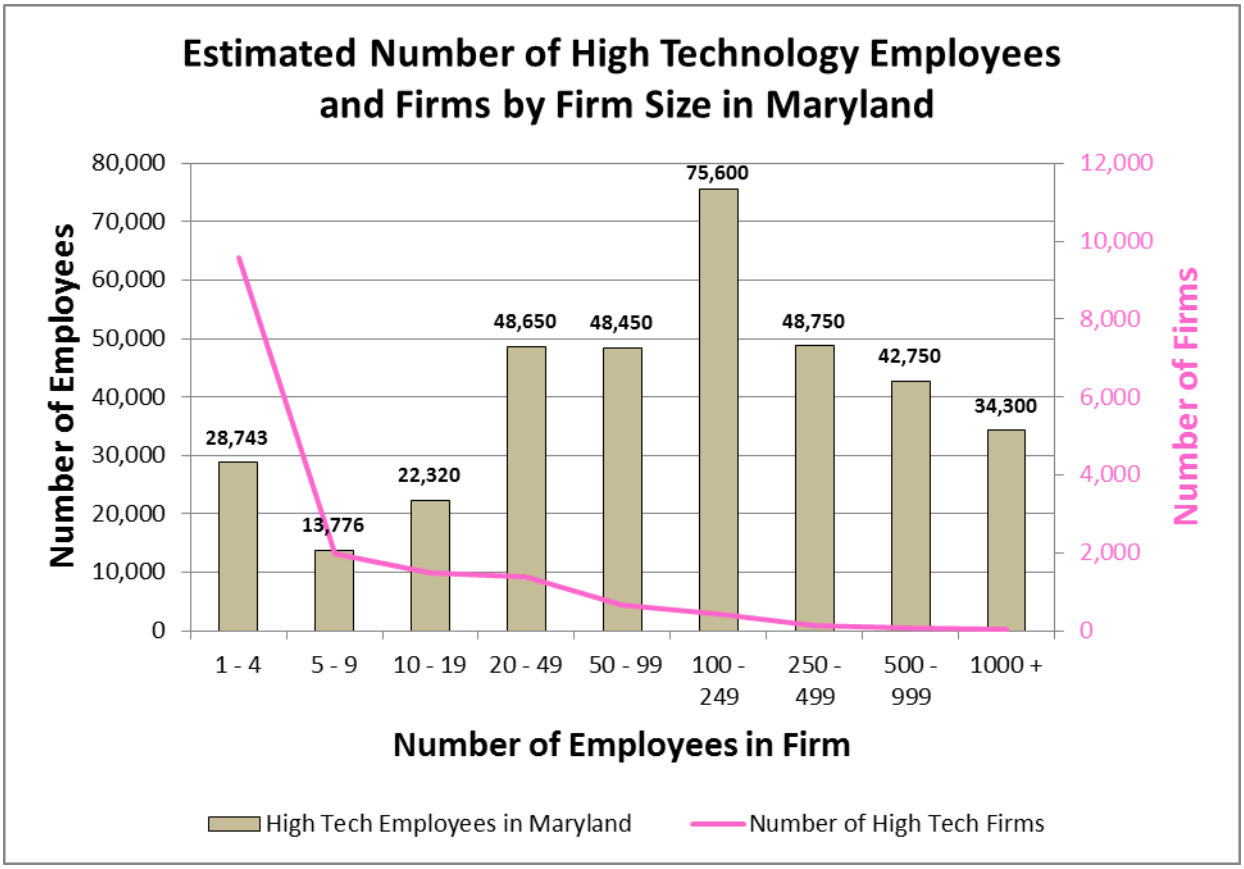
Chart 4



Source: 2013 U.S. Census Bureau, ZIP Code Business Patterns

[3] Employment by firm size was estimated by taking the midpoint of the range (e.g., 75 employees for the 50 to 99 range). As the highest employment range has no upper limit (1,000 or more employees), establishments in this range were estimated to contain 1,250 employees.

Chart 5



Source: 2013 U.S. Census Bureau, ZIP Code Business Patterns

Montgomery County Dominates

Montgomery County had by far the largest number of high technology firms in Maryland in 2013 (4,641), comprising almost one-third (29.5%) of statewide totals. Howard County was second (1,835 firms, or 11.7% of the state total) while Anne Arundel County (1,750, 11.1%) was third (See **Map 1** and **Table 4**). Howard County had the largest increase in high tech firms between 2006 and 2013 (401), while Montgomery County had the second highest increase (347).

With the largest overall number of firms, Montgomery County also had seven of the top 10 ZIP codes with high tech establishments in 2013 (See **Table 5**). Concentrations were particularly heavy in the Rockville-Gaithersburg-Germantown area along the I-270 corridor that runs from the Capital Beltway (I-495) to Frederick County (See **Map 2**). Within this corridor, ZIP code 20878 (Gaithersburg) had the largest gain in establishments (298) from 2006 (311) to 2013 (609).[4] Other large concentrations in Montgomery County are in Bethesda, Potomac and Silver Spring, right around the Capital Beltway.

[4] A change in the number of establishments over time by zip code may not reflect consistent geographies since zip code boundaries can and do change over time.

Outside of Montgomery County, large concentrations exist in Howard County, particularly in Columbia, and to a lesser extent, Ellicott City. In Anne Arundel County, concentrations were found in Annapolis, and adjacent to the BWI-Thurgood Marshall Airport. In Baltimore County, the highest number of high tech establishments is in the Lutherville/Timonium/Cockeysville area along the I-83 corridor and in Owings Mills along the I-795 corridor (See **Map 3**).

In Prince George's County, most of the high tech firms were in Lanham, along Route 450, and in Beltsville, adjacent to the Capital Beltway. A few concentrations of high tech establishments could be found outside of the Baltimore-Washington Corridor. Largest among these were in Frederick near Fort Detrick and in downtown Baltimore City.

Definition of High Technology Industries

There have been numerous studies on, and various listings of, what constitutes a "high technology" industry. The definition of high technology sectors for this study were taken from multiple sources to ensure that all relevant industries were included.

The primary source for classifying high technology industries was an article published in a 2005 *Monthly Labor Review* article that listed NAICS codes for high technology industries.[5] Basically, this article concluded that "an industry is considered high tech if employment in technology-oriented occupations accounted for a proportion of that industry's total employment that was at least twice the 4.9 percent average for all industries.[6,7] High technology occupations were defined as scientific, engineering and technician occupations. This list of high tech industries was augmented with definitions from the AeA[8] and the State Science and Technology Institute (SSTI),[9] which both define high technology industries by measuring a sector's employment of technology-related occupations as well as a sector's contribution to the advancement of high technology through research and development expenditures.

NAICS is reviewed every five years for potential revisions, so the classification system can keep pace with the changing economy. The last update in 2012 resulted in fewer industry classifications in 2012 then there were in 2007. Refer to the concordances to see changes in industry sector classifications.[10]

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[5] Hecher, Daniel E., "High technology employment: a NAICS-based update," Monthly Labor Review, July 2005, pages 57 – 72. http://www.bls.gov/opub/mlr/2005/07/art6full.pdf
[6] Ibid., page 58
[7] One sector in the BLS list, "Federal Government, excluding Postal Service," was not included in this analysis since the County Business Patterns data does not cover government employment.
[8] http://www.aeanet.org/Publications/idmk_naics.asp
[9] http://www.ssti.org/Publications/Onlinepubs/NAICS_Tech1.pdf
[10] https://www.census.gov/eos/www/naics/concordances/concordances.html